configured to adjust the frame number counter during one or more odd numbered frames and the base station may make a reference timing adjustment during one or more even numbered frames.

16. (*Amended*) The mobile station in claim 14, wherein the data processing circuitry is configured to adjust the frame number counter during one or more even numbered frames and the base station may make a reference timing adjustment during one or more odd numbered frames.

17. (*Amended*) The mobile station in claim 13, wherein the mobile station reference timer is an internal clock.

Please add new claims 21-23 without prejudice or disclaimer as follows.

21. (*New*) The method in claim 1, wherein the block of information is a frame.

22. (*New*) The base station in claim 8, wherein the block of information is a frame.

23. (*New*) The base station in claim 13, wherein the block of information is a frame.

## REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version With Markings To Show Changes Made**."

Claims 1-3, 7, 13 and 17 stand rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,208,871 to Hall et al. This rejection is respectfully traversed.

A single prior art reference anticipates a patent claim if it expressly or inherently describes each and every limitation set forth in the patent claim. *Verdegaal Bros., Inc. v. Union Oil Co., Inc.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Inherent anticipation requires that the missing descriptive material is "necessarily present," not merely probably or possibly present, in the prior art. *In re Robert*, 169 F3d 743, 745 (Fed. Cir. 1999) (citing *Continental Can Co.*

*USA, Inc. v Monsanto Co,* 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)). Hall fails to satisfy this rigorous standard.

In Hall, a random mobile station provides a time adjustment to a second base station transceiver in order to coordinate the timing between a first base station and the second base station. The first base station has access to an absolute time such as GPS. The second base station does "not have access to system timing synchronization." Column 2, lines 29-30. In this situation, Hall states "it would be desirable to time synchronize all BTSs to one master BTS." Column 2, lines 33-35. The mobile station is the mechanism by which the second base station is synchronized to the first base station.

But the timing of the mobile station is never adjusted. The Examiner contends "that a change on a timing of the mobile station according to a reference time of base station 101" is effected, referring in Hall to column 5, line 58 to column 6, line 24 and column 9, lines 29-53. Applicant respectfully disagrees. That text in column 5 and 6 describes the flowchart of Fig. 3 describing the method of a random mobile station providing a timing adjustment to the second BTS 201. Column 5, lines 29-33. This method is not used to make a mobile station timing adjustment.

The random mobile station 103 is supplied with the identity of the first and second base stations including a first PN short code time offset for the first base station and a second PN short code time offset for the second base station. Hall does not disclose determining a "third" PN short code offset for the mobile station.

To get this base station offset information, the random mobile station acquires and tracks signals transmitted by both the first and second base stations. This signal acquisition is a basic radio receiving operation. In essence, the mobile's local oscillator must synchronize its frequency to the base station signal frequency in order to receive and demodulate the signal.

> [T]he random mobile station 103 enables a phase-lock loop algorithm to begin adjusting its *local oscillator frequency* to synchronize to an *oscillator frequency* of the first base station transceiver. Concurrently, the random mobile station 103 initiates a timer (not shown). Upon expiration of the timer, random mobile station 103 freezes the phase lock loop algorithm, thereby yielding a stable free-running *local oscillator frequency* in

> mobile station 103 which is substantially equal to the *oscillator frequency*
> of the first base transceiver station. A random mobile station
> controller then extracts a first time-offset from the first signal. Finally,
> random mobile station 103 terminates tracking of the first signal.

Column 5, lines 58- column 6, line 3 (emphasis supplied). The following text in column 6,

describes essentially the same procedure for the second base station with the random mobile

station determining a timing adjustment calculation for the second base station based upon a

time offset difference between the first and second PN short code offsets.

The Examiner may have confused the random mobile station's local oscillator

frequency synchronization with "effecting a change in a reference timing of the mobile

station during a second time interval different from the first time interval" recited in claim 1.

Again, the random mobile station is simply adjusting its local oscillator frequency to that of

the first base station transceiver so that it can receive and demodulate the base station signal.

Hall does not describe adjusting the mobile station's reference timing. An oscillator

produces a signal that varies between two amplitudes at a certain frequency. A reference

timer produces an absolute time, e.g., 09:00 AM from a GPS transmitter mentioned by Hall,

or produces an output at a particular time that indicates a particular event, e.g., the output is

a particular frame number. To clarify the distinction between a frequency and a timing

reference, the independent claims have been amended. For example, claim 1 refers to first

and second reference timing adjustments and explains that the reference timing is used by

the base and mobile stations "to determine a time when a block of information starts or

ends." Dependent claim 21 provides an example of that block of information being a frame.

There is mention of a timer being initiated by the mobile station. But that timer does

not relate to the mobile station's reference timing. Rather, the expiration of that timer

"freezes" the phase lock algorithm at the current local oscillator frequency.

Claim 8 recites a base station that includes a base station reference timer that

generates a reference timing used by the base station to determine a time when a block of

information starts or ends. Data processing circuitry is

> configured to receive a timing adjustment from the radio network
> controller and to adjust the base station reference timer during a first
> time period allocated for the base station to make a timing adjustment

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different from a time period allocated for the mobile station to make a
reference timing adjustment.

Because Hall fails to disclose making this sort of reference timing adjustment for the mobile
station, there is no disclosure of Hall adjusting the base station reference timer in the first
time period that is different from the claimed second time period.

Regarding independent claim 13, Hall does not disclose a "mobile station reference
timer for generating a reference timing used by the mobile station to determine a time when
a block of information starts or ends." Nor does Hall disclose the claimed data processing
circuitry configured

> to adjust the mobile station reference timer in response to the detected
> timing signal during a first time period allocated for the mobile station
> to make a reference timing adjustment different from a second time
> period allocated for the base station to make a reference timing
> adjustment.

The mobile station adjusting its local oscillator frequency is not the same thing as the mobile
station adjusting its timer "wherein the timing adjustment relates to when a block of
information in a communication begins or ends."

Withdrawal of the rejection of claims 1-3, 7, 13 and 17 based upon Hall is therefore
respectfully requested.

Claims 8 and 12 stand rejected under 35 USC §102(e) as being anticipated by U.S.
Patent No. 6,307,840 to Wheatley et al. This rejection is respectfully traversed.

Wheatley describes mobile-assisted timing synchronization between a slave base
station and a reference base station, and therefore, is quite similar to Hall. Wheatley also
suffers from Hall's deficiencies as set forth above. The text at column 5, lines 7-40 explains
that the time intervals illustrated in Fig. 2 are "used to synchronize the timing of slave base
station 64 with the synchronize timing of reference base station 62." The timing of mobile
station 60 is not adjusted or synchronized. Therefore, the Examiner's reliance on Fig. 2 is
misplaced. That figure only relates to base station timer adjustment. There is no indication
in that figure or in the corresponding description that the base station makes the timing

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adjustment during a first time period that is different from a second time period during which the mobile station makes a timing adjustment.

The Examiner also references column 11, lines 30-42 relating to a measurement of the delay of transmission of a Forward Link Signal from the slave base station and receipt of a Reverse Link Signal at the slave base station. Again, the timing adjustment being described relates to adjustment of the slave base station timing and not to any timing adjustment of the mobile station.

Accordingly, Wheatley fails to disclose all of the features recited in independent claim 8. The anticipation rejection based upon Wheatley should be withdrawn.

Claim 18 stands rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,366,786 to Norman et al. This rejection is respectfully traversed.

Norman describes a mobile radio with a synchronization apparatus 14 for time synchronizing a mobile radio with the base station 12. Although Norman describes adjusting the mobile station timing unit 16, the Examiner fails to point out where and when the base station timer 26 is adjusted. Claim 18 requires that the mobile station timer be adjusted at a different time than the time the base station timer is adjusted. In column 3, lines 12-21, the only mention of the base station timing unit 26 is in conjunction with the base station sending its time value to the mobile station 10. Accordingly, Norman lacks features required by independent claim 18. The rejection based upon Norman should be withdrawn.

Claims 4-6 and 14 stand rejected under 35 USC §103(a) as being unpatentable over Hall in view of U.S. Patent No. 5,872,820 to Upadrasta. This rejection is respectfully traversed.

As noted above, Hall fails to describe adjusting the mobile station's reference timing. The mobile radio may have some sort of absolute timing reference, but there is no disclosure in Hall of adjusting such a timing reference. Still further, there is no disclosure or hint that if such an adjustment were to occur, that it would to occur during a time period different from when the reference timing adjustment in the base station occurs.

Upadrasta's system relates to adjusting the timing of a mobile station. But Upadrasta does not adjust reference timing at both the mobile station and the base station. Nor does Upadrasta disclose or suggest "adjusting the base station reference timing incrementally during a first set of time intervals" and "adjusting the mobile station reference timing incrementally during a second set of time intervals." Incrementing a frame number counter is not the same thing as adjusting reference timing. The incrementing of the frame number counter timing in Upadrasta is the normal outputting of a time value. Such incrementing is not an adjustment of the output count value. To actually adjust the mobile station timing, Upadrasta changes the frame number counter output from its next count value to some other value that corrects for a particular time lag. This kind of correction is not made in the base station.

Regarding claim 5, there is no disclosure making timing adjustments (not increments) to Upadrasta's mobile station frame number counter only during one of odd and even time intervals. There is no adjustment of the base station frame counter even described in Upadrasta.

Regarding claim 14, Applicant has reviewed Figs. 2 and 3 of Upadrasta as well as columns 3 and 4 and finds no disclosure or suggestion of Upadrasta's base station frame counter being adjusted. What is illustrated and described is determining a time lag between the base station and mobile station counters and adjusting the mobile station frame number counter output to compensate for that time lag. The base station counter output is not adjusted.

Thus, the combination of Hall and Upadrasta fails to disclose or suggest the subject matter recited in claims 4-6 and 14.

Claim 9 stands rejected under 35 USC §103(a) as being unpatentable over Wheatley in view of Upadrasta. This rejection is respectfully traversed.

This rejection fails for the same reasons just described above with respect to the combination of Hall and Upadrasta. Because Upadrasta does adjust the base station frame number counter, Upadrasta does not disclose adjusting the "the frame number counter

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during a frame having a different number than a frame during which the mobile station may make a timing adjustment."

Applicant appreciates the Examiner's indication of allowable subject matter in claims 10-11, 15-16, 19 and 20.  For the reasons set forth above, Applicant respectfully submits that all claims should be allowed.  An early notice to that effect is earnestly solicited.

Respectfully submitted,

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IN THE CLAIMS:

1. (*Amended*) In a radio communications network including a base station communicating over a radio interface with a mobile station, a method comprising:

determining a <u>first reference</u> timing adjustment <u>for the base station and a second reference timing adjustment for the mobile station</u>;

effecting a change in a <u>reference</u> timing of the base station during a first time interval <u>using the first reference timing adjustment, the base station reference timing being used by the base station to determine a time when a block of information starts or ends</u>; and

effecting a change in a <u>reference</u> timing of the mobile station during a second time interval different from the first time interval <u>using the second reference timing adjustment, the mobile station reference timing being used by the mobile station to determine a time when the block of information starts or ends</u>.

2. (*Amended*) The method in claim 1, wherein the determining step includes:

determining a difference between the base station timing and a radio network controller timing, and

determining the <u>first reference</u> timing adjustment based on the difference.

3. (*Amended*) The method in claim 2, further comprising:

comparing the difference with a threshold, and

if the difference exceeds the threshold, determining the <u>first reference</u> timing adjustment.

7. (*Amended*) The method in claim 1, wherein the mobile station is in diversity handover with a first and a second base station, further comprising:

determining a <u>third reference</u> timing adjustment for [each of] the [first and] second base [stations] <u>station</u>;

effecting a change in a <u>reference</u> timing of the first and second base stations based on

the [determined] <u>first and third</u> timing adjustments; and

effecting a change in a <u>reference</u> timing of the mobile station during a time interval different from when the <u>reference</u> timing of the first or the second base station [timing] is changed.

8. (*A mended*) A base station coupled to a radio network controller for communicating with a mobile station over a radio interface, comprising:

a base station <u>reference</u> timer <u>for generating a reference timing used by the base station to determine a time when a block of information starts or ends</u>; and

data processing circuitry configured to receive a timing adjustment from the radio network controller and to adjust the base station <u>reference</u> timer during a first time period allocated for the base station to make a <u>reference</u> timing adjustment different from a second time period allocated for the mobile station to make a <u>reference</u> timing adjustment.

9. (*A mended*) The base station in claim 8, wherein the base station <u>reference</u> timer is a frame number counter, and the data processing circuitry is configured to adjust the frame number counter during a frame having a different number than a frame during which the mobile station may make a <u>reference</u> timing adjustment.

10. (*A mended*) The base station in claim 9, wherein the data processing circuitry is configured to adjust the frame number counter during one or more odd numbered frames while the mobile station may make a <u>reference</u> timing adjustment during one or more even numbered frames.

11. (*A mended*) The base station in claim 9, wherein the data processing circuitry is configured to adjust the frame number counter during one or more even numbered frames while the mobile station may make a <u>reference</u> timing adjustment during one or more odd numbered frames.

12. (*A mended*) The base station in claim 8, wherein the base station <u>reference</u> timer is an internal clock.

13. (*Amended*) A mobile station for communicating with a base station over a radio interface, the base station being coupled to a radio network controller, comprising:

a mobile station <u>reference</u> timer <u>for generating a reference timing used by the mobile station to determine a time when a block of information starts or ends</u>; and

data processing circuitry configured to detect a timing signal from the base station and to adjust the mobile station <u>reference</u> timer in response to the detected timing signal during a first time period allocated for the mobile station to make a <u>reference</u> timing adjustment different from a second time period allocated for the base station to make a <u>reference</u> timing adjustment.

14. (*Amended*) The mobile station in claim 13, wherein the mobile station <u>reference</u> timer is a frame number counter, and the data processing circuitry is configured to adjust the frame number counter during a frame having a different number than a frame during which the base station may make a <u>reference</u> timing adjustment.

15. (*Amended*) The mobile station in claim 14, wherein the data processing circuitry is configured to adjust the frame number counter during one or more odd numbered frames and the base station may make a <u>reference</u> timing adjustment during one or more even numbered frames.

16. (*Amended*) The mobile station in claim 14, wherein the data processing circuitry is configured to adjust the frame number counter during one or more even numbered frames and the base station may make a <u>reference</u> timing adjustment during one or more odd numbered frames.

17. (*Amended*) The mobile station in claim 13, wherein the mobile station <u>reference</u> timer is an internal clock.

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